

Algebra 1 - Unit 1 Test REVIEW

Name: Key 8/20/17

1. Solve the following equation. $4x - 10 = 14$
 $x = 6$

2. Multiply the following expressions. $(3x + 4)(-x - 5)$
 $-3x^2 - 19x - 20$

3. Solve the following equation. $6 = -2x - 14$
 $x = -10$

4. Multiply the following expressions. $(2x)(5x^3 - x^2 + 4x - 2)$
 $10x^4 - 2x^3 + 8x^2 - 4x$

5. Solve the following equation. $5(2 - x) = 30$
 $x = -4$

6. Simplify the following expression. $(-x^4 + 8xy - 4x + 10) - (2x^3 - 5xy + x - 1)$
 $-x^4 - 2x^3 - 5x + 13xy + 11$

7. Break this radical down to simplify it. (Think FACTORS)
 $\sqrt{24} = 2\sqrt{6}$

8. Label the pieces of this term: $5x^4$
- A. Coefficient: 5
 - B. Variable: x
 - C. Exponent: 4

9. Write an example of the following:
- A. A rational number: $-\frac{15}{2}$
 - B. An Irrational number: $4.1237692\dots$ or $\sqrt{5}$
 - C. How can you tell if a number is irrational?
Converts to decimal that does not end, has no pattern
 - D. How can you tell if a number is rational?
Can be written as a fraction. If decimal, it terminates or has a pattern (like -3.52)
 - E. What is one confusing thing about rational/irrational number?
" Tell me!

10. Fill in the blanks.
- A rational number multiplied by a rational number will ALWAYS be Rational.
 - An irrational number added to an irrational number will ALWAYS be Irrational.
 - A negative multiplied by a negative will ALWAYS be positive.
 - A rational number subtracted from an irrational number will ALWAYS be Irrational.

11. Simplify the following expression. * Same as combining/adding rat + irrational

$$\sqrt{4} - \sqrt{32} + \sqrt{3} - \sqrt{12}$$

$$= 2 - 4\sqrt{2} + \sqrt{3} - 2\sqrt{3}$$

$$= 2 - 4\sqrt{2} - \sqrt{3}$$

12. Combine the following polynomials.

$$-x^5 + 7x^2 - 8x + 10$$

$$+ 5x^5 + 2x^3 - x - 4$$

$$4x^5 + 2x^3 + 7x^2 - 9x + 6$$

13. Solve the following equation for z.

$$\frac{8xz}{8x} = \frac{mfb}{8x} \rightarrow z = \frac{mfb}{8z}$$

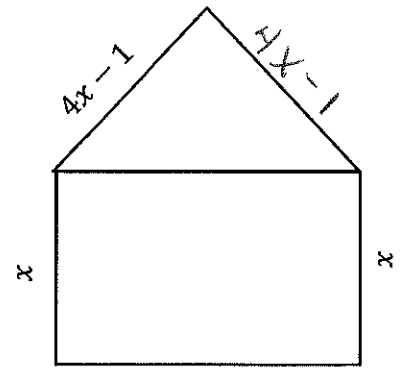
14. Solve the following equation for x.

$$y = mx + b$$

$$\frac{-b}{-b} \quad \frac{-b}{-b}$$

$$y - b = mx \rightarrow \frac{y-b}{m} = x$$

15. What is the perimeter of the house?



perimeter = $12x + 3$

Bobby has three sources of income. He has an allowance every month. His grandmother gives him money each year on his birthday.

He has a college fund where his parents **triple** his money every month. The following function ($f(x)$) represents how much Johnny makes in one year, based on after a given number of months, x .

$$f(x) = 5(3)^x + 20x + 25$$

Questions

16. What does the term $20x$ represent?

Bobby's allowance

17. How much does Bobby's grandmother give him each year? 25 (only once)

18. What does each number represent, and what does x represent? # = amount of \$, x = month

Each number represents



represents _____, and x represents _____

Answers

<p>19. (4 points) State if the following is rational or irrational, and justify your answer.</p> $\sqrt{4} + 7$	<p>This expression is: <u>rational or irrational</u> (circle one) because....</p> <p>$\sqrt{4} = 2$, so it's just $2 + 7 = 9$</p> <p><u>Rational</u> →</p>	
<p>20. (4 points) Match the following vocabulary with a definition.</p> <p>A. An expression with two terms B. A smaller symbolic number, the 2 in $5x^2$ C. A number that can be expressed by a fraction D. The number in front of the variable</p>	<p><u>C</u> Rational Number <u>B</u> Exponent <u>D</u> Coefficient <u>A</u> Binomial</p>	
<p>21. (4 points) Match the following vocabulary with a definition.</p> <p>E. A number that cannot be expressed as a ratio between two integers, and is not imaginary F. A combination of letters and numbers separated by either addition, subtraction, and/or multiplication signs G. A number that has no variables attached to it. H. A letter that represents an unknown. I. A single-term expression</p>	<p><u>H</u> Variable <u>E</u> Irrational Number <u>G</u> Constant <u>I</u> Monomial <u>F</u> Polynomial</p>	
<p>22. (4 points) Solve the following equation. Show ALL work.</p> $x - 2 = 4x + 10x - 9$ <p>1) Distribute/combine Like Terms 2) Move variables to one side, constants to other</p>	$x - 2 = 4x + 10x - 9$ $x = \frac{7}{13}$	
<p>23. (4 points) Simplify the following expression. Show ALL work.</p> $(x - 1)(2x + 4)$	$(x - 1)(2x + 4)$ <p>Final Answer: <u>$2x^2 + 2x - 4$</u></p>	
<p>24. (4 points) Simplify the following square root. Show ALL work.</p> $\sqrt{32}$	$\sqrt{32}$ <p>Final Answer: <u>$4\sqrt{2}$</u></p>	
<p>25. (2 points) Part A: Aliyah had \$23 to spend on six pencils. After buying them she had \$11. How much did each pencil cost? <u>$6x + 11 = 23$</u></p>	<p>(2 points) Part B: How old am I if 300 reduced by 2 times my age is 102? <u>$6x + 11 = 23$</u> <u>$x = 2$</u></p> <p>Part A Answer: \$ <u>2.00</u></p>	<p><u>$300 - 2x = 102$</u> <u>$x = 99$</u></p> <p>Part B Answer: <u>99</u> years old</p>